

Noise Barrier Test Site – QEW/Cawthra Road – Before Barrier Social Survey

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PREFACE

As part of its continuing efforts to mitigate the impact of traffic noise on adjacent residential areas, the Ministry of Transportation and Communications (MTC) will erect an experimental noise barrier on both sides of the QEW immediately east of Cawthra Road in the City of Mississauga. The barrier will be situated between the freeway and parallel service roads.

To date, noise barriers have not been erected in locations with heavy traffic on both sides of the barrier. Therefore, information available on the effectiveness of such an application is minimal.

This experiment will provide the necessary knowledge to effectively analyze the value of providing barriers at other similar sites throughout the province.

A number of individual studies will be undertaken before and after the noise barrier erection to evaluate the actual and perceived benefits.

These reports will document the following:

- computer predicted before and after barrier noise levels for various barrier material options;
- before and after barrier field measured noise levels;
- before and after social surveys of both affected residents and drivers, general level of satisfaction;
- before and after documentation of driver behaviour.

Individual reports should be consulted for specific details.

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TABLE OF CONTENTS

	PAGE
PREFACE	ii
ACKNOWLEDGEMENTS	iii
LIST OF TABLES AND FIGURES	v
EXECUTIVE SUMMARY	vii
1/ INTRODUCTION	1
2/ NEIGHBOURHOOD SURVEY	2
2.1/ Neighbourhood Research Methodology	2
2.1.1/ Geographic Study Area	2
2.1.2/ Questionnaire	3
2.1.3/ Data Collection Procedures	3
2.2/ Neighbourhood Research Findings.	4
2.2.1/ Statistical Procedures.	4
2.2.2/ Sample Characteristics.	4
2.2.3/ Residents' Perceptions of Neighbourhood	6
3/ DRIVER SURVEY	11
3.1/ Driver Survey Research Methodology	11
3.1.1/ Questionnaire Construction.	11
3.1.2/ Sampling Location	11
3.2/ Driver Survey Research Findings.	12
3.2.1/ Sample Characteristics.	12
3.2.2/ Perceptions of Traffic Speed and Traffic Lane Position	12
3.2.3/ Service Road Driving Comfort.	13
3.2.4/ Existing New Jersey Barrier	14
4/ DISCUSSION	15
4.1/ Neighbourhood Survey	15
4.2/ Driver Survey.	16
APPENDIX A - SURVEY QUESTIONNAIRES	33
APPENDIX B - LETTER TO RESIDENTS	53
APPENDIX C - SELECTED NOISE BARRIER REFERENCES	54
APPENDIX D - ADDITIONAL TABLES	55

LIST OF TABLES AND FIGURES

TABLES	PAGE
1/ Overview of Local Community Characteristics.	18
2/ Number of Households Sampled North and South of the QEW for Each Zone	19
3/ Age Distribution and Number of Respondents for Each Zone . . .	20
4/ Distribution of Average Length of Residence of Respondents for Each Zone	21
5/ Living Accommodation of Residents for Each Zone.	21
6/ Percentage of Respondents' Likes/Dislikes of Neighbourhood Features by Zone.	22
7/ Average Respondents' Assessments of the Severity of Negative Features of Neighbourhood.	23
8/ Average Respondents' Assessments of the Severity of Problem Level Associated with the QEW and the Service Road . .	24
9/ Residents' Perception of Limitation from Proximity to Highway and Moving from Neighbourhood	25
10/ Respondents' Perception of Existing New Jersey Barrier by Zone.	26
11/ Home and Property Alterations Reported by Respondents for Each Zone.	27
12/ Characteristics of Drivers Using North and South Service Road	28

LIST OF TABLES AND FIGURES continued

	PAGE
13/ Drivers' Perceptions of Traffic Speed.	29
14/ Drivers' Perceptions of Traffic Lane Position.	30
15/ Drivers' Perceptions of Service Road Driving Comfort in Terms of Safety, Noise and Driving Difficulty . . .	31
16/ Drivers' Perception of Existing New Jersey Barrier	32

FIGURES

1/ The Study Area -- QEW East from Cawthra Road	ix
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EXECUTIVE SUMMARY

The Ministry of Transportation and Communications commissioned this survey as part of an overall study to determine noise barrier effectiveness when located between a freeway and parallel service roads. This survey may be used in establishing warrants for barrier construction in similar situations within the province. Two related surveys were conducted, one for residents (Neighbourhood Quality Survey) and one for drivers (Quality of Service Road Driving Survey). The residential survey area was on the north and south side of the Queen Elizabeth Way (QEW) east from Cawthra Road for about half a kilometre. The information collected in this survey will be used for comparison with data that will be obtained in 1983 after the barrier has been constructed.

The Neighbourhood Survey examined residents' (N=104) likes and dislikes of their immediate neighbourhood, perceptions of noise and other freeway disturbances and any comments or suggestions they may have had for improving the existing New Jersey barrier. As well, the characteristics of the local area were documented for purposes of comparing them with future noise barrier sites.

The study area was divided into three zones based on the dwellings' distance from the QEW. Zone I (N=44) included homes directly adjacent to the highway while Zone II (N=33) included the second layer of homes and Zone III (N=27) included homes between Zone II and up to approximately 270 m from the highway.

The results indicated that residents considered the problem of noise from the QEW to be high in all three zones, while noise from the adjacent service roads was a problem for residents only in Zones I and II. As found in past studies, other freeway disturbances (traffic fumes, salt spray, residue and dust and dirt settling on yards/porches) were significantly greater for residents immediately adjacent to the freeway than for residents further from the highway. Noise problems were considered most severe when residents were outside using their yards.

The Driver Survey was conducted in two shopping malls located near the future site of the barrier. The survey was conducted with 308 drivers, composed of an approximately equal number of males and females at an average age of 39 yr. Drivers were asked to judge the traffic speed and lane position of vehicles travelling in the same lane and oncoming traffic lane (while thinking about driving toward as well as away from the shopping mall). Drivers' perceptions of service road noise, driving safety and driving difficulty along the service road were also obtained.

As with the Neighbourhood Survey, suggestions and comments about the existing New Jersey barrier were solicited. The majority of those interviewed from both the Neighbourhood Survey and the Driver Survey who recommended changes to the barrier, suggested that the existing barrier should be made higher and out of concrete. These suggestions were made both for noise and safety reasons.

In general, drivers perceived traffic speed on the service roads to be slightly above the speed limit. Drivers also perceived traffic to travel on average in the middle and slightly toward the centre line of the lane. These findings are of importance for the post construction survey if drivers perceive traffic to be travelling more toward the centre line, away from the barrier.

Approximately 40% of the drivers considered safety a problem due to lane design (lane narrowing on the north side and overly wide lanes on the south side). Other safety concerns were identified as headlight glare, QEW noise and QEW traffic distraction.



Figure 1/ The Study Area QEW East from Cawthra Road

1/ INTRODUCTION

Freeway noise is the major factor contributing to the dissatisfaction of residents living close to a highway. The Ministry has been constructing noise barriers as part of an overall program designed to alleviate this problem. A tall (total height 5 m) closely spaced barrier is scheduled for construction along the QEW, immediately east of Cawthra Road, in the late summer/early fall of 1982 as an experiment. The noise barrier will be constructed on both sides of the freeway, on top of an existing New Jersey barrier separating the freeway and adjacent service roads.

This particular study is the "Before Barrier Social Survey." The findings of this survey will be compared with those obtained in an "After Barrier Social Survey" (scheduled for the fall of 1983) in order to provide an assessment of the noise barrier on area residents and drivers. The purpose of the before barrier survey was to ascertain the general level of satisfaction of residents and road users within the study area. To this end, a survey was conducted in two parts:

- an in-home resident survey, and
- a driver survey carried out in local shopping centres.

Although previous studies have examined the reactions of residents to noise barriers (e.g., MTC, 1979*) this study is unique in that the baseline data will provide information on the perceived effects of:

- noise barriers placed between a freeway and parallel service roads;
- noise barriers erected on both sides of a narrow freeway;
- noise barriers erected on top of an existing New Jersey barrier.

*"Highway Noise Barriers: A Review of Non-Acoustical Effects." Kornets and Sharratt, March 1979. For a more complete set of references refer to Appendix C.

2/ NEIGHBOURHOOD SURVEY

2.1/ Neighbourhood Research Methodology

2.1.1/ Geographic Study Area

All addresses were obtained for the study area by aerial photos and survey maps provided by the Ministry to the research team. The study area is shown in Figure 1. The area extends on the north from the QEW, east of Cawthra Road to the east side of Westfield Drive. On the south, the area extends from the QEW to the west side of Ogden Avenue. The area south of the QEW was originally extended about 300 m to the east side of Ogden Avenue and interviewing was conducted accordingly. Following the interviewing stage of the study, the area was reduced in size due to changes in proposed barrier construction. In addition, the research team updated the listing of households in the sample area through on-site visits.

Selected community characteristics were obtained relating to local area amenities, street conditions and housing types. Some of this information is presented in Table 1. Overall, most homes were of a detached, brick bungalow construction. Lot sizes and homes were on average smaller on the north side of the QEW. Several streets on both sides of the highway were unpaved, and the streets did not have sidewalks. Several residents commented that the lack of sidewalks was a particularly poor feature of the neighbourhood on the south side of the highway in combination with poor street lighting. Many areas throughout ZONES II and III did not have any street lighting. Both neighbourhoods north and south of the QEW had an adjacent or nearby shopping plaza.

The sampling area was divided into three zones based on the distance of the households from the QEW. ZONE I was generally defined as those homes whose property line was situated immediately adjacent to the highway. ZONE II included the second layer of homes from the highway, while ZONE III included dwellings between ZONE II and up to approximately 270 m from the highway (see Figure 1).

2.1.2/ Questionnaire

The Neighbourhood Quality Survey questionnaire (Appendix A) was developed by the research team based on a draft questionnaire provided by the Ministry. The questionnaire was pre-tested with 20 residents from homes in the area on the south side of the QEW east of Dixie Road. The pre-test area was considered representative of the sampling area.

The questionnaire was developed to focus on the perceived quality of the neighbourhood and did not put primary emphasis on perceived difficulties with noise. The first two questions asked respondents to identify their likes and dislikes concerning the neighbourhood. The questions related to perceived problems due to noise were embedded within the questionnaire. As well, the questionnaire inquired about perceived severity of problems related to noise from the QEW and service roads separately. The remaining questions inquired about:

- demographic information,
- whether the respondent had considered moving due to perceived problems,
- alterations done to house or property,
- the existing New Jersey barrier.

The questionnaire averaged 18 min to complete in the face-to-face interview situation.

2.1.3/ Data Collection Procedures

The interviews were conducted by experienced interviewers who were also specifically trained in the administration of this survey. Interviewers were trained to ask questions in a precise and consistent manner and used specific back-up questions and probes as required.

The survey was conducted by four interviewers from October 5 to October 15, 1981. Several days prior to this period all households in the area received a letter informing them that the Ontario government was interested in their opinions concerning their neighbourhood, and that an

interviewer would contact them shortly. A copy of the letter is presented in Appendix B.

2.2/ Neighbourhood Research Findings

2.2.1/ Statistical Procedures

The Survey responses were analyzed using two separate statistical tests depending on the type of information being examined. Ordinal data, that is the percentage of interviewees responding to various categories of a survey item, were analyzed by the use of a chi-square. Interval scale data or information that is continuous (e.g., age) were analyzed with an F test. An F test is used to determine the probability that the variation in one group of responses is statistically different from other groups of responses.

2.2.2/ Sample Characteristics

The initial sampling area called for a minimum of 125 interviews out of 150 households, an 83% sampling criterion. The revised sampling area, referred to as the "sampling area" throughout the remainder of the report, constituted 119 households. Although the terms of reference called for an attempt at 100% sampling in the Zone I area, it was decided that an attempt would be made to interview all households in all zones, although call-back priority was given to Zone I. One resident from each dwelling, 18 yr. of age or older was interviewed with an attempt to obtain an equal proportion of male and female respondents. In the case of multiple dwelling homes, only one respondent was sampled on the ground floor. The sampling unit was considered as the dwelling, regardless of, the number of families or occupants. The percentage of households surveyed in the area for each zone, north and south of the QEW is presented in Table 2.

As the sample size was considered too small for more than 2-way cross-tabulation of the data, the north/south location data is presented in Appendix D for future reference and the data in the report is presented by zone. Only demographic information will be presented for north and south comparison (refer to Appendix D).

As indicated in Table 2, 104 residents representing 88% of the total households (N=119) were interviewed. On a zone basis, the sample rate was: ZONE I, 94%; ZONE II, 87%; and ZONE III, 83%.

Men and women were almost equally represented in the sample. The sex differences by zone were not statistically significant. There were slightly more women in ZONE I (54.5%) and slightly more men in ZONE III (55.5%). ZONE II was composed of the same percentages of men and women.

Respondents were also classified according to age. There were no significant differences in age between respondents living on the north and south sides of the QEW. Respondents on the north side did tend to be older than respondents on the south side. A higher percentage of respondents on the north side were classified in the 61-80 category (34.5%) while only 10.2% were so classified on the south side. At the same time, there was a lower percentage of respondents on the north side classified in the 46-60 yr. age category (23.6%) when compared to the south side (36.7%).

Age of respondents was classified according to zone and is presented in Table 3. No significant differences were found when age and zone were compared.

The mobility of residents of the area is also fairly low. The average length of residence was not significantly different when comparing the areas north and south of the QEW. As may be expected from the fact that residents north of the QEW tend to be older, there was also a trend (albeit insignificant) to have lived in their homes longer (north, $\bar{x}$ =14.1 yr.; south, $\bar{x}$ =11.9 yr.).

The mobility of residents was also classified according to zone. These data are presented in Table 4. Residents in ZONE I and ZONE II have been in their homes significantly longer than ZONE III (ZONE I, $\bar{x}$ =14.3 yr.; ZONE II, $\bar{x}$ =13.9 yr.; ZONE III, $\bar{x}$ =11.6 yrs.).

The majority of residents own their homes as opposed to rent (87.2% and 4.8%, respectively). The remaining respondents are living with relatives

or are in relatives'/parents' homes. Accommodation information is presented in Table 5.

2.2.3/ Residents' Perceptions of Neighbourhood

The remaining results of the survey will be presented looking at residents' perceptions across the three zones.

Neighbourhood Likes/Dislikes

Respondents were asked to indicate what features they liked and disliked about their immediate neighbourhood. Table 6 gives an overview of the percentage of respondents for each zone who spontaneously identified various issues. Each item was checked if the respondent mentioned that particular feature; the interviewers did not prompt for each specific feature separately.

The majority of respondents in all three zones indicated they liked the area's convenience to local amenities. This included features such as proximity to shopping, schools, public transport, place of work, parks, entertainment and friends. Convenience to major expressways was also mentioned by 29% of the total respondents.

The suburban location was a positive feature mentioned by significantly more residents in ZONES II and III than in ZONE I (ZONE I, 11.4%; ZONE II, 39.4%; ZONE III, 37.0%). The physical appearance of the area was increasingly considered a positive feature of the neighbourhood as distance from the highway increased. Respondents in ZONE I mentioned the physical appearance of the neighbourhood as a positive feature significantly less often than residents in ZONES II and III (ZONE I, 9.1%; ZONE II, 27.3%; ZONE III, 37.0%). As well, none of the respondents in ZONES II and III indicated that they could not think of anything they liked while 9.1% of the respondents in ZONE I indicated they could not think of a positive feature of the neighbourhood.

As with the likes of the neighbourhood, respondents were also asked which features they disliked. The majority of respondents indicated they disliked noise from the QEW. Although dislike of QEW noise was not

significant across zones there was a trend for less displeasure with the noise as distance from the highway increased (ZONE I, 63.6%; ZONE II, 60.6%; ZONE III, 48.1%). Residents in ZONE I also indicated that they disliked the amount of traffic on the service road and local streets more so than residents in ZONES II and III (ZONE I, 18.2%; ZONE II, 9.1%; ZONE III, 11.1%). Except for QEW noise and local traffic volume the majority of residents were not displeased with their neighbourhood.

Residents were asked to indicate the degree of perceived severity of possible problems for various features associated with being in proximity to the QEW and service road. These data are presented in Tables 7 and 8. Interviewees responded by indicating that a feature of the neighbourhood presented a) no problem - scored as zero, b) a mild problem - scored as one, c) a moderate problem - scored as two, or d) a severe problem - scored as three. The summary information presented in Tables 7 and 8 represents the average response to each feature for each zone.

As previously indicated by spontaneous responses to likes and dislikes there were no significant differences in residents' perceptions across zones regarding the noise level from the QEW. Residents in all three zones considered the problem to be at a moderate to severe level (ZONE I, $\bar{x}=2.2$; ZONE II, $\bar{x}=2.2$; ZONE III, $\bar{x}=1.7$). Residents considered the noise from the service road as mild to moderate; the average severity of the problem decreased across zones (ZONE I, $\bar{x}=1.7$; ZONE II, $\bar{x}=1.5$; ZONE III, $\bar{x}=1.2$).

Several of the issues were considered by the respondents to provide only minor problems. These problems consisted of the sight of QEW traffic, the amount of break-ins/vandalism and stranded motorists or hitch-hikers. ZONE I respondents considered stranded motorists/hitch-hikers as a significantly greater problem than respondents in ZONES II and III.

There were also significant differences across zones in respondents' perceptions of problems associated with the amount of salt spray/residue from the highway, and dust/dirt that settled in their yards and porches. With both types of problems residents closest to the highway (ZONE I) considered the problems on average moderate. In contrast, residents from

ZONES II and III indicated that there was very little problem with regard to the salt spray and residue from the highway (ZONE I, $\bar{x}=1.9$; ZONE II, $\bar{x}=1.0$; ZONE III, $\bar{x}=0.6$; $p < 0.001$).

Specific QEW and Service Road Problems

The questionnaire contained 5 items that inquired about the respondents' perception of specific QEW and service road problems. These data are shown in Table 8.

As the data indicate, the most severe problem emanating from both the service roads and QEW occur when the residents are outside using their yards and porches. For QEW noise, the level of perceived problem severity is high across all zones and no significant differences were found (ZONE I, $\bar{x}=2.3$; ZONE II, $\bar{x}=2.2$; ZONE III, $\bar{x}=1.7$). On the other hand, the service road problem was on average less severe. For people who could distinguish differences it affected ZONES I and II significantly more than ZONE III (ZONE I, $\bar{x}=1.8$; ZONE II, $\bar{x}=1.8$; ZONE III, $\bar{x}=1.1$; $p < .05$).

Significant differences were found between all three groups on the item "amount of noise from the QEW when talking to people in the home." Although the average problem level was not severe the differences across zones were significant (ZONE I, $\bar{x}=1.2$; ZONE II, $\bar{x}=0.8$; ZONE III, $\bar{x}=0.5$; $p < .01$). Problems associated with the service road when talking to people in the home was also significantly higher for ZONE I residents, albeit less severe overall (ZONE I, $\bar{x}=1.0$; ZONE II, $\bar{x}=0.5$; ZONE III, $\bar{x}=0.4$; $p < .01$).

The amount of fumes from QEW traffic was also a significantly greater problem for ZONE I residents than residents in ZONES II and III (ZONE I, $\bar{x}=1.6$; ZONE II, $\bar{x}=1.1$; ZONE III, $\bar{x}=0.6$; $p < .05$). This same trend across zones was found for traffic fume problems from the service road. Again, the severity of the problem was not as great as for the QEW (ZONE I, $\bar{x}=1.3$; ZONE II, $\bar{x}=0.9$; ZONE III, $\bar{x}=0.5$; $p < .01$). Several of the residents commented that the severity of the problem depended on wind direction. Another aspect resulting from the fumes several residents mentioned was

their difficulty in maintaining healthy gardens or shrubbery. Only residents in ZONE I made these comments.

The amount of noise from QEW traffic when trying to sleep was also perceived as a problem (ZONE I, $\bar{x}=1.7$; ZONE II, $\bar{x}=1.7$; ZONE III, $\bar{x}=1.2$). Many indicated they had become accustomed to this. The problem for many residents was not the noise of the constantly moving traffic, but rather braking noises that came suddenly and were unexpected. The problem of noise when trying to sleep was perceived as less severe from the service road (ZONE I, $\bar{x}=1.2$; ZONE II, $\bar{x}=1.1$; ZONE III, $\bar{x}=0.9$).

Reading and relaxing in the home was not perceived as severely hampered by noise from the QEW or service road traffic. Significant differences did result, however, across zones in the perceived problem level of QEW noise (ZONE I, $\bar{x}=1.3$; ZONE II, $\bar{x}=0.9$; ZONE III, $\bar{x}=0.5$; $p<.01$). The service road did not present anything more than a mild problem on average for respondents in all zones.

Limitations From Proximity to Highway

Thirty-five percent of the respondents indicated that problems associated with being in proximity to the highway limited what the family was able to do in and around the home. The vast majority of the respondents felt that the greatest limitation was not being able to utilize their backyards in the summer time. These perceived limitations were highly significant across zones (ZONE I, 47.7%, ZONE II, 33.3%; ZONE III, 14.8%; $p<.001$. see Table 9).

Moving From Neighbourhood

Another indication of respondents' attitudes and perceptions of their neighbourhood was if they had considered moving and if their reasons were related to problems associated with the QEW. This information is presented in Table 9. Respondents in ZONE I had considered moving more often than respondents in ZONES II and III (ZONE I, 54.5%; ZONE II, 39.4%; ZONE III, 40.7%). Three quarters of the interviewees in ZONES I

and II indicated they had considered moving because of the problems (76% and 75% respectively), while only 25% of the respondents in ZONE III indicated likewise. ZONES I and II were significantly different from ZONE III ($p < .005$).

Existing New Jersey Barrier

At the present time the highway and service road are separated by a New Jersey barrier, a one metre concrete barrier with a chain link fence on top. Respondents were asked if they had noticed this barrier between the QEW and service road. Interviewers also probed for suggestions the respondents may have to change the barrier in material or design. Table 10 gives an overview of their responses concerning the existing barrier.

As Table 10 indicates the vast majority of respondents had noticed the existing barrier. Of those individuals who had noticed the barrier 55% indicated they would change it in some way. Of the 46 respondents who suggested changes, 75% mentioned building the barrier higher and solid as a suggested means of reducing noise, 9% stated higher and solid for fumes and 16% mentioned building it higher for safety. Respondents in ZONE I indicated that they thought the barrier should be left as is, more often than respondents in ZONES II and III (ZONE I, 30.6%; ZONE II, 14.8%; ZONE III, 23.8%).

Alterations to Home or Property

Respondents were asked if various alterations had been done to their home or property by themselves or previous owners. Table 11 gives an overview of the percentage of respondents in each zone indicating that the alterations had been done. No significant differences resulted when comparisons were made across zones. The majority of respondents indicated that weather stripping and storm windows had been added to the home, and that trees had been planted and a fence erected on the property. ZONE I respondents indicated that air conditioning had been added to the home more often than respondents in ZONES II and III (ZONE I, 54.5%; ZONE II, 42.4%; ZONE III, 40.7%).

3/ DRIVER SURVEY

The Driver Survey was administered to obtain baseline data from local area drivers regarding:

- usage patterns of the service roads;
- perceptions of service road driving safety;
- perceptions of service road speed and traffic position;
- demographic characteristics;
- perceptions of existing New Jersey barrier.

3.1/ Driver Survey Research Methodology

3.1.1/ Questionnaire Construction

The final version of the questionnaire (see Appendix A) was based on an initial draft supplied to the research team by the Ministry. The questionnaire was pre-tested with 20 respondents. Based on the pre-test findings, revisions were made to question wording and format. The final version was approved by the Ministry research study team.

3.1.2/ Sampling Location

The Driver Survey was conducted in two shopping plazas: The Applewood Village Shopping Centre located on the north side of the QEW and Dixie Mall Shopping Centre located south of the QEW (refer to Figure 1 for location of plazas). Surveys were conducted by two trained interviewers from October 5, 1981 to October 14, 1981. Interviews took place between 16:00 and 21:00 during the week and between 11:00 and 18:00 on Saturday.

Potential interviewees were screened out if they had been interviewed previously at either plaza, if they did not possess a drivers' licence or if they had not driven on the service road between the respective plaza and Cawthra Road within the last month. Of the individuals approached, only 4 individuals were previously interviewed, and 17 individuals had not driven on the service road within the previous month (all on the south side of the QEW).

3.2/ Driver Survey Research Findings

3.2.1/ Sample Characteristics

Table 12 gives an overview of the sample's characteristics in terms of age, sex, type of vehicle driven and service road use for drivers on the north and south side of the QEW. Males were somewhat over-represented in the total sample of 308 respondents (males, 57%; females, 43%). The ratio of males and females was the same on both the north and south side of the QEW.

Drivers on the north were on average 9 yr. older than drivers on the south side of the QEW (north, 44.3 yr.; south, 35.1 yr.). This is consistent with the Neighbourhood Survey where we noted that residents on the north side of the QEW were also several years older. Certainly drivers on the north side of the QEW use the service road more frequently, averaging several times per week. Drivers on the south side of the QEW are much more likely to use the service road several times per month.

Among drivers, automobile travel predominates (north, 93.2%; south, 88.6%) while the remaining vehicle types were identified as vans or light trucks (north, 5.3%; south, 7.4%), or trucks with more than two back-axes (north, 0.8%; south, 1.7%) and other vehicles.

3.2.2/ Perceptions of Traffic Speed and Traffic Lane Position

Drivers were asked about their perceptions of traffic speed and lane position, both for vehicles driving in the same lane as well as the oncoming traffic lane. Drivers were first asked to judge traffic speed and position, imagining driving in the lane closest to the houses. On the north side that would indicate driving away from the plaza, while on the south side they would be driving toward the plaza. Drivers were then asked the same questions imagining driving in the lane closest to the highway. Again, on the north side that would refer to driving toward the plaza while on the south side travelling in the highway lane would refer to the direction away from the plaza.

Once the direction of travel was understood by the interviewee, he/she was asked three questions: speed of cars travelling in the same lane, lane position of other vehicles travelling in the same lane and the lane position of other vehicles driving in the oncoming lane. Following these three questions the respondent was asked to think of travelling in the opposite direction and the questions were repeated.

The data for drivers' perceptions of traffic speed are presented in Table 13. The present maximum allowable speed on both service roads is 60 km/h. As demonstrated in Table 13 there were no statistically significant differences in perceived traffic speed either for north/south location or lane of travel. In all cases traffic speed was perceived to average slightly above the speed limit.

Table 14 provides the distribution of responses and summary data for drivers' perceptions of traffic lane position. No statistically significant differences in perception resulted between drivers using the north and south service roads. In all cases, whether driving in the lane closest to the houses or in the highway lane, drivers perceived cars to be closer to the middle of the road with a slight tendency toward the centre line. This result is desirable from a pre-test point of view as it allows for significant vehicular shift toward the centre line if the barrier has an effect.

3.2.3/ Service Road Driving Comfort

In order to determine if the noise barrier adversely affects perceptions of driving ease, baseline data were collected on service road driving difficulty, safety and drivers' concern about road noise. These data are presented in Table 15. No significant differences resulted in comparison of drivers' perceptions between the north and south service roads.

Forty percent of the drivers felt that safety was a problem while driving on the service road. Of these drivers over 75% considered the problem to be moderate or severe.

Lane width was the predominant issue for drivers on the service roads. On the north service road drivers commented on the narrowing of lanes just west of the Applewood Plaza. Directly in front of the plaza there are two westbound lanes, one marked for right turns into the plaza and the other for continuing. According to drivers, these two lanes merge into one lane with no warning and drivers continue to use the road as two lanes.

On the south service road lane width is also a problem. The lane is a wide, unmarked single lane. Drivers use the road as two lanes and do not use turn signals, or proper lane change procedures.

Twenty-three percent of the drivers felt that driving on the service roads was more difficult than driving in general while the remaining drivers indicated that service road driving was the same or easier than driving generally. Other safety concerns expressed by drivers relate to distractions from QEW traffic in terms of headlight glare (8%) and noise (11%). Noise was slightly, though not significantly, of greater concern for north service road drivers (14.3%) than for south service road drivers (8.6%). Drivers who considered noise a moderate or severe problem were also greater in number on the north service road (north, 68.4%; south, 46.7%).

3.2.4/ Existing New Jersey Barrier

As in the Neighbourhood Quality Survey drivers were asked if they had noticed the barrier between the QEW and the service road and if so, did they have any suggestions for changes. These data are presented in Table 16. Approximately three quarters of the drivers indicated they had noticed the barrier and 36.5% and 44.8% of the drivers from the north and south service roads respectively suggested changes.

On both sides of the highway, two concerns predominated, namely safety and noise. Safety concerns accounted for 85% of the comments and 15% related to noise. For these reasons drivers preferred a structure that is solid (concrete) and higher. It was mentioned that the blocking out of QEW traffic and lights, and the reduction of noise, would greatly enhance service road driving. Four drivers (1.3%) mentioned that the existing barrier was a distraction and thought it should be replaced, although no replacement suggestions were offered.

4/ DISCUSSION

4.1/ Neighbourhood Survey

One hundred and four (104) residents were interviewed to collect baseline data on their perceptions of the neighbourhood prior to the construction of a noise barrier. The residents represent an approximately equal number of males and females within each of the three designated zones.

The sample was analyzed by locations north and south of the QEW and by zone. As the sample size is insufficient for more than 2-way cross-tabulation of the data, the north/south location data is presented for future reference and the data in the report is presented by zone.

Overall the majority of residents in all three zones indicated they liked their neighbourhoods. The area's locality was definitely the most frequently cited feature, being close to all needed amenities. It is interesting to note that residents in ZONE I thought of moving because of problems significantly more often than residents in ZONES II and III. The main reasons cited for wanting to move were noise and safety. However, this increased interest in moving cannot be attributed solely to living next to the freeway. Such a finding is confounded by the fact that ZONE I residents have lived in their homes significantly longer, and are on average several years older, than residents in the other two zones. Consequently, these residents have had more time in their present homes to consider moving. Due to an insufficient sample size, it is not possible to determine whether this older subgroup alone accounts for this finding.

ZONE I residents did not frequently mention the physical appearance of the area as a positive feature. At the same time, when asked about changes in the existing barrier, they indicated more frequently than residents in ZONES II and III they would leave it as is. Several residents had concerns over the physical attractiveness of a noise barrier. The physical attractiveness of the barrier could be explored in more detail at the drop-in centre.

Generally, ZONE I residents identified the problems of living adjacent to the highway and service roads as more severe compared to residents in ZONES II and III. The significant differences in perceived problem level were mainly concerning non-acoustical effects. ZONE I residents considered the problems of traffic fumes, salt spray and residue from the highway and dust and dirt in their yards, as significantly greater than residents in ZONES II and III.

The perception of noise problems from the QEW when compared across zones was not significantly greater for ZONE I residents; the problem level was at a high level for residents of all zones. Significant differences did result in perception of noise problems from the service roads for residents closer to the highway. For the post survey it will be interesting to note if lower highway noise affects residents' perceptions of noise problems resulting from the service roads.

4.2/ Driver Survey

Three hundred and eight (308) drivers were interviewed about their perception of driving on the north and south service roads. Drivers were asked about their perceptions of traffic speed and traffic lane position, concerns over safety and noise, driving difficulty and suggestions about changes in the existing barrier.

No significant differences were observed with respect to drivers on the north and south service roads. The only tendency that was evident related to drivers' age; drivers were on average 9 yr. older on the north side.

Overall, drivers perceived traffic, both in their own lane and the oncoming traffic lane, to travel slightly above the speed limit and within the centre of the lane slightly toward the centre line. No differences in these perceptions resulted from drivers thinking about driving in the curb lane or the highway lane.

Drivers expressed safety concerns due to lane patterns on the service roads and distractions from QEW headlight glare. For these reasons many drivers indicated they would like to see the existing barrier changed to concrete and built higher. Only 11% of the drivers thought that traffic noise was a problem for driving. As well, driving on the service roads was on average not perceived to be more difficult than driving in general.

TABLE 1/ OVERVIEW OF LOCAL COMMUNITY CHARACTERISTICS

HOUSING	NORTH	SOUTH
Size of Lots*	average 15.24 m x 36.58 m	average 15.24 m x 36.58 m several homes 21.34 m x 60.96 m
Size of Home	120.77 m ² - 139.35 m ²	130.06 m ² - 185.81 m ²
Type of Construction	brick	brick
General Type of Dwelling	detached bungalow	detached bungalow/ several backsplit one duplex
STUDY AREA		
Shopping Malls	one adjacent	3 blocks east
Religious Centres	none	none
Parks	none	none
Schools	none	none

* Data from local area realtor.

TABLE 2/ NUMBER OF HOUSEHOLDS SAMPLED NORTH
AND SOUTH OF THE QEW FOR EACH ZONE

	ZONE I			ZONE II			ZONE III			Overall
	<u>N</u>	<u>S</u>	<u>Total</u>	<u>N</u>	<u>S</u>	<u>Total</u>	<u>N</u>	<u>S</u>	<u>Total</u>	<u>Total</u>
Total Households	24	23	47	23	16	39	20	13	33	119
Sample Size	22	22	44	17	16	33	16	11	27	104
% Sampled	92	96	94	74	100	87	80	85	83	88

TABLE 3/ AGE DISTRIBUTION AND NUMBER OF
OF RESPONDENTS FOR EACH ZONE

AGE CLASSIFICATION	ZONE I		ZONE II		ZONE III		TOTAL	
	%	n	%	n	%	n	%	n
18 - 32	25.0	11	27.3	9	29.6	8	27.3	28
33 - 45	11.4	5	27.3	9	25.9	7	21.5	21
46 - 60	38.6	17	27.3	9	18.5	5	28.1	31
61 - 80	25.0	11	18.2	6	25.9	7	23.0	24
Number of Respondents	100.0	44	100.0	33	100.0	27	100.0	104
Mean Age (Yrs.)	48.9		44.5		45.4		46.3	

TABLE 4/ DISTRIBUTION OF AVERAGE LENGTH OF
RESIDENCE OF RESPONDENTS FOR EACH ZONE

LENGTH OF RESIDENCE*	ZONE I		ZONE II		ZONE III		TOTAL	
	%	n	%	n	%	n	%	n
1 - 4 yr.	27.3	12	9.1	3	40.7	11	25.7	26
5 - 13 yr.	22.7	10	39.4	13	11.1	3	24.4	26
14 - 24 yr.	25.0	11	36.4	12	29.6	8	30.3	31
25 yr.	25.0	11	15.2	5	18.5	5	19.6	21
Total	100.0	44	100.0	33	100.0	27	100.0	104
Average Years of Residence	14.3		13.9		11.6		13.3	

*Chi² (6df) = 12.8, p <.05 ZONES I AND II differ significantly from
ZONE III.

TABLE 5/ LIVING ACCOMMODATION OF RESIDENTS FOR EACH ZONE

ACCOMMODATION	ZONE I		ZONE II		ZONE III		TOTAL	
	%	n	%	n	%	n	%	n
Own	88.6	39	87.9	29	85.2	23	87.2	91
Rent	9.1	4	3.0	1	-	-	4.8	5
Other	2.3	1	9.1	3	14.8	4	7.7	8

TABLE 6/ PERCENTAGE OF RESPONDENTS' LIKES/DISLIKES
OF NEIGHBOURHOOD FEATURES BY ZONE

	ZONE I		ZONE II		ZONE III		TOTAL	
	%*	n	%*	n	%*	n	%*	n
LIKES								
a) convenience to local amenities	52.3	23	69.7	23	63.0	17	60.6	63
b) convenience to major highways	34.1	15	24.2	8	25.9	7	28.8	30
c) physical appearance of area**	9.1	5	27.3	9	37.0	10	22.1	23
d) suburban location***	11.4	5	39.4	13	37.0	10	26.9	28
e) can't think of any likes	9.1	4	-	-	-	-	3.8	4
DISLIKES								
a) noise from QEW	63.6	28	60.6	20	48.1	13	58.7	61
b) noise from airplane	-	-	-	-	3.7	1	0.9	1
c) air pollution from QEW	13.6	6	3.0	1	11.1	3	9.6	10
d) too much traffic on service roads/local streets	18.2	8	9.1	3	11.1	3	13.5	14
e) physical appearance of area	6.8	3	3.0	1	-	-	3.8	4
f) type of neighbours	2.3	1	3.0	1	3.7	1	2.9	3
g) don't dislike anything	18.2	8	24.2	8	29.6	8	23.1	24

* Percentage represents those respondents who mentioned each particular feature.

** χ^2 (2df) = 8.33, $p < .05$ ZONE I differs significantly from ZONES II and III.

*** χ^2 (2df) = 9.43, $p < .01$ ZONE I differs significantly from Zones II and III.

TABLE 7/ AVERAGE RESPONDENT'S ASSESSMENTS OF THE SEVERITY OF
NEGATIVE FEATURES OF THE NEIGHBOURHOOD

		ZONES		
		I	II	III
a)	break-ins/vandalism	$\bar{x} =$	.7	.7
		SE =	.1	.2
b)*	stranded motorists/hitch-hikers	$\bar{x} =$	.7	.4
		SE =	.2	.1
c)	noise from QEW	$\bar{x} =$	2.2	2.2
		SE =	.2	.2
d)	noise from service road	$\bar{x} =$	1.7	1.5
		SE =	.2	.2
e)**	dirt & dust settling on yard/porch	$\bar{x} =$	2.2	1.6
		SE =	.2	.2
f)**	salt spray or residue from highway	$\bar{x} =$	1.9	1.0
		SE =	.2	.2
g)	the sight of QEW traffic	$\bar{x} =$	.6	.5
		SE =	.2	.2

Problem Level Response Categories: (0) No Problem (1) Mild
(2) Moderate (3) Severe
All significant tests were an F test with (2,101 df).

- * $p < .05$ All three zones differ significantly from each other.
** $p < .001$ ZONE I differed significantly from ZONES II and III.

TABLE 8/ AVERAGE RESPONDENT'S ASSESSMENTS OF THE SEVERITY OF PROBLEM
LEVEL ASSOCIATED WITH THE QEW AND THE SERVICE ROAD

		QEW			SERVICE ROAD		
		ZONE			ZONES		
		I	II	III	I	II	III
a) amount of noise when trying to sleep	$\bar{x} =$	1.7	1.7	1.2	1.2	1.1	.9
	SE =	.2	.2	.2	.2	.2	.2
b) noise when talking to people in your home	$\bar{x} =$	1.2**	.8	.5	1.0**	.5	.4
	SE =	.2	.2	.1	.2	.1	.1
c) noise when using yard or porch	$\bar{x} =$	2.3	2.2	1.7	1.8*	1.8	1.1
	SE =	.2	.2	.2	.2	.2	.2
d) noise when reading or relaxing in your home	$\bar{x} =$	1.3**	.9	.5	1.0	.6	.5
	SE =	.2	.2	.2	.2	.2	.2
e) amount of fumes from traffic	$\bar{x} =$	1.6**	1.1	.6	1.3**	.9	.5
	SE =	.2	.2	.2	.2	.2	.2

Problem Level Response Categories: (0) No Problem
(1) Mild
(2) Moderate
(3) Severe

* F(2,101 df), p <.05 ZONE I and II differ significantly from ZONE III.

** F(2,101 df), p <.01 ZONE I differed significantly from ZONES II and III.

TABLE 9/ RESIDENTS' PERCEPTION OF LIMITATION FROM PROXIMITY
TO HIGHWAY AND MOVING FROM NEIGHBOURHOOD

		ZONE I		ZONE II		ZONE III		TOTAL	
		%	n	%	n	%	n	%	n
"Limitations from Proximity to QEW"									
	Yes*	47.7	21	33.3	11	14.8	4	34.6	36
	No	43.2	19	63.6	21	77.8	21	58.7	61
	Don't Know	9.1	4	3.0	1	7.4	2	6.8	7
"Considered Moving"									
If yes, related to problems	Yes	54.5	24	39.4	13	40.7	11	46.2	48
	No	45.5	20	60.6	20	59.3	16	53.8	56
	Yes**	79.2	19	69.2	9	27.3	3	64.6	31

* χ^2 (2df) = 18.4, $p < .001$

ZONES I and II differ significantly from ZONE III

** χ^2 (2df) = 14.7, $p < .005$

TABLE 10/ RESPONDENTS' PERCEPTION OF EXISTING
NEW JERSEY BARRIER BY ZONE

		ZONE I		ZONE II		ZONE III	
		%	n	%	n	%	n
Noticed Barrier		81.8	36	81.8	27	85.2	23
Suggestions for Change*	Yes	47.2	17	59.3	16	61.9	14
	No	16.7	6	25.9	7	14.3	3
	Don't Know	5.5	2	-	-	-	-
Leave as is		30.6	11	14.8	4	23.8	6

* Of those respondents who had noticed barrier

Suggested Changes:

- 35 (75%) respondents - higher and solid for noise reasons
- 4 (9%) respondents - higher and solid for fume reasons
- 7 (10%) respondents - higher for safety reasons.

TABLE 11/ HOME AND PROPERTY ALTERATIONS REPORTED
BY RESPONDENTS FOR EACH ZONE

ALTERATION	PERCENT							
	ZONE I		ZONE II		ZONE III		TOTAL	
	%	n	%	n	%	n	%	n
Weather Stripping	68.2	30	66.7	22	70.4	19	68.3	71
Air Conditioning	54.5	24	42.4	14	40.7	11	47.1	49
Storm Windows	75.0	33	63.6	21	77.8	21	72.1	75
Planted Trees	70.5	31	75.8	25	70.4	19	72.1	75
Fence	50.0	22	57.6	19	63.0	17	55.8	58

TABLE 12/ CHARACTERISTICS OF DRIVERS USING
NORTH AND SOUTH SERVICE ROADS

APPLEWOOD PLAZA NORTH SERVICE ROAD		DIXIE PLAZA SOUTH SERVICE ROAD	
%	n	%	n
<u>SEX</u>			
57.1	76	57.1	100
42.9	57	42.9	75
100.0	133	100.0	175
<u>AGE</u>			
44.3		35.1	
<u>VEHICLE DRIVEN</u>			
93.2	124	88.6	155
5.3	7	7.4	13
0.8	1	1.7	3
0.8	1	2.2	4
<u>FREQUENCY OF SERVICE ROAD USE</u>			
40.6	54	27.4	48
30.8	41	22.9	40
19.5	26	20.0	35
9.0	12	29.7	52

TABLE 13/ DRIVERS' PERCEPTIONS OF TRAFFIC SPEED

LANE SPEED		NORTH (n = 133)		SOUTH (n = 175)	
		%	n	%	n
<u>Lane Closest to Houses</u>		<u>Score</u>			
Well Below	(1)	3.0	4	2.3	4
Slightly Below	(2)	6.8	9	14.3	25
At Speed Limit	(3)	39.1	52	30.3	53
Slightly Above	(4)	28.6	38	38.3	67
Well Above	(5)	19.5	26	2.3	4
Don't Know/Haven't Thought About		3.0	4	2.3	4
Average Score Based on Lane Speed		3.57		3.46	
<u>Lane Closest to Highway</u>		<u>Score</u>			
Well Below	(1)	-	-	1.7	3
Slightly Below	(2)	8.3	11	9.7	17
At Speed Limit	(3)	44.4	59	29.7	52
Slightly Above	(4)	30.1	40	41.7	73
Well Above	(5)	13.5	18	12.6	22
Don't Know/Haven't Thought About		3.8	5	4.6	8
Average Score Based on Lane Speed		3.51		3.56	

TABLE 14/ DRIVERS' PERCEPTIONS OF TRAFFIC LANE POSITION

DRIVER LANE/LANE JUDGED		NORTH		SOUTH	
		%*	n	%*	n
a) <u>Lane by Houses/Same Lane</u>	<u>Score</u>				
- quite close to curb	(1)	12.0	16	9.7	17
- about middle of line	(2)	44.4	59	50.3	88
- quite close to centre line	(3)	30.8	41	30.9	54
Average Lane Position Score		2.22		2.23	
b) <u>Lane by Houses/Other lane</u>	<u>Score</u>				
- quite close to highway	(1)	11.3	15	14.3	25
- about middle of lane	(2)	57.9	77	43.4	76
- quite close to centre line	(3)	24.8	33	19.8	61
Average Lane Position Score		2.14		2.22	
c) <u>Lane by Highway/Same Lane</u>	<u>Score</u>				
- quite close to highway	(1)	6.8	9	11.4	20
- about middle of lane	(2)	53.4	71	49.9	87
- quite close to centre line	(3)	29.3	39	30.9	54
Average Lane Position Score		2.25		2.21	
d) <u>Lane by Highway/Other Lane</u>	<u>Score</u>				
- quite close to curb	(1)	11.3	15	10.9	19
- about middle of lane	(2)	51.9	69	47.4	83
- quite close to centre line	(3)	29.3	39	32.6	57
Average Lane Position Score		2.20		2.24	

*Percentages do not total to 100 due to "Don't Know/Haven't Thought About" responses.

TABLE 15/ DRIVERS' PERCEPTIONS OF SERVICE ROAD DRIVING COMFORT
IN TERMS OF SAFETY, NOISE AND DRIVING DIFFICULTY

		RESPONDENTS			
		NORTH		SOUTH	
		%	n	%	n
SAFETY - A Problem?					
If Yes, to what extent	Yes	39.8	53	40.0	70
	No	57.9	77	58.9	103
	Haven't Noticed	2.3	3	1.1	2
		Score			
	Mild (1)	19.6	10	24.3	17
	Moderate (2)	39.3	21	47.1	33
	Severe (3)	41.1	22	28.6	20
Average Severity Score		2.23		2.04	
NOISE - A Concern?					
If Yes, to what extent	Yes	14.3	19	8.6	15
	No	85.7	114	88.0	154
	Haven't Noticed	-	-	3.4	6
		Score			
	Mild (1)	31.6	6	53.3	8
	Moderate (2)	15.8	3	26.6	4
	Severe (3)	52.6	10	20.0	3
Average Severity Score		2.21		1.69	
DRIVING DIFFICULTY RELATIVE TO OTHER ROADS					
Is more difficult		25.6	34	20.6	36
Is about the same		67.9	77	61.1	107
Is easier		16.5	22	18.3	32
Average Difficulty Score		1.91		1.98	

TABLE 16/ DRIVERS' PERCEPTIONS OF EXISTING NEW JERSEY BARRIER

		NORTH		SOUTH	
		%	n	%	n
Noticed Barrier		78.2	104	76.0	133
Suggestion for Change*	YES	36.5	38	44.8	59
	NO	21.1	22	23.1	31
	Don't Know	9.6	10	7.5	10
Leave as Is		32.7	34	24.6	10

* Of those who noticed barrier

Suggested Changes:

- 81 (85%) drivers - higher and solid for safety reasons
- 12 (13%) drivers - higher and solid for noise reasons
- 4 (1.3%) drivers - take down because of distraction.

SEPTEMBER/OCTOBER 1981

_____ AM/PM
TIME BEGIN

ASK THE FIRST QUESTION IMMEDIATELY

[illegible]

1. First, I would like you to think of your immediate neighbourhood. This would include the area within 3 blocks or one quarter mile of your home. Within this area what features do you like most of all?

CODERS ONLY

DO NOT READ:PROBE FOR MORE "LIKES"

"Is there anything else?"

- () I. checked a. convenience to local services or amenities: close to shopping, schools public transit, place of work, parks, entertainment, friends, open spaces / 10
- () I. checked b. convenient to major highways, expressways / 11
- () I. checked c. physical appearance of area / 12
- () I. checked d. suburban location: away from city, less crowded, quiet streets, little local traffic, etc., / 13
- () I. checked e. don't like or can't think of anything / 14
- () I. checked f. other (specify) _____ / 15

2. Now, I would like you to think about the features you dislike most of all about living in this neighbourhood?

DO NOT READ:AGAIN PROBE FOR DISLIKES

"Is there anything else?"

- () a) noise from Queen Elizabeth Way / 16
- () b) noise from airplanes / 17
- () c) air pollution/dust/dirt from Queen Elizabeth Way / 18
- () d) not convenient to local amenities: too far from schools, shopping, public transit, place of work, parks, entertainment, friends, open space / 19

CODERS ONLY

- | | |
|---|---------|
| () e) too much traffic on service road or local streets | _/_/ 20 |
| () f) physical appearance of area: unkept lawns, parks, presence of highrise buildings, etc. | _/_/ 21 |
| () g) type of neighbours: noisy, rowdy teens, etc. | _/_/ 22 |
| () h) don't dislike anything | _/_/ 23 |
| () i) other (specify) _____
_____ | _/_/ 24 |

3. I will now read a set of potentially negative features of a neighbourhood. I would like you to indicate if you consider any of these a problem. If you do feel it is a problem could you please indicate if it is mild, moderate or severe.

INTERVIEWER: (0) No problem (1) mild problem (2) moderate problem (3) severe problem

- | | |
|--|---------|
| () a) the amount of break ins/vandalism | _/_/ 25 |
| () b) stranded motorists or hitchhikers | _/_/ 26 |
| () c) the amount of noise from the GEW | _/_/ 27 |
| () d) the amount of noise from the service road | _/_/ 28 |
| () e) the amount of dust and dirt that settles on your yard or porch | _/_/ 29 |
| () f) the amount of salt spray or residue from the highway in the winter on your home or yard | _/_/ 30 |
| () g) the sight of the Q.E.W. | _/_/ 31 |
| () h) Comments _____
_____ | _/_/ 32 |

CODERS ONLY

4. Some further potentially negative statements refer to both the QEW and the Service Road separately. Could you please respond to each statement as you did for the previous statements.

INTERVIEWER: (0) No problem (1) mild problem (2) moderate problem (3) severe problem

- a) the amount of noise when you are trying to sleep / 33 / 34
() QEW () Service Road () CD
 / 35
Comment:

- b) the amount of noise when you are talking to people in your home / 36 / 37
() QEW () Service Road () CD
 / 38
Comment:

- c) the amount of noise when using your yard or porch / 39 / 40
() QEW () Service Road () CD
 / 41
Comment:

- d) the amount of noise when reading or relaxing in your house / 42 / 43
() QEW () Service Road () CD
 / 44
Comment:

- e) the amount of fumes from traffic / 45 / 46
() QEW () Service Road () CD
 / 47
Comment:

CODERS ONLY

5. Do you feel any of the above problems limit the kinds of things you or your family do in and around your home?

() 1. Yes Specify _____

() 2. No

___/ 48

() 7. Don't Know/No Reply

() 8. Not Applicable/No Problems

6. Have any of the following alterations been done to your home or property?

() 1. weather stripping around windows/doors

___/ 49

() 1. installed air conditioning

___/ 50

() 1. installed thermal or storm windows

___/ 51

() 1. planted trees

___/ 52

() 1. put up a fence

___/ 53

() 1. other (specify) _____

___/ 54

() 9. Not Applicable _____

7. Have you noticed the barrier between the GEW and the Service Road.

() 1. Yes

() 2. No

() 7. Don't know

SKIP TO QUESTION 9

___/ 55

CODERS ONLY

8. Do you have any suggestions about how the barrier could be changed? For example, would you built it higher or lower or change the material or design in any way?

() 1. Yes (specify) _____

() 2. No

 / 56

() 3. Leave as is

() 7. Don't know

IF YES, for what reason?

(specify) _____

 / 57

9. At any point in time have you or your family ever considered moving away from here?

() 1. Yes

() 2. No GO TO QUESTION 10

 / 58

IF YES, were your reasons for moving related to any of the problem issues discussed

() 1. Yes (which issue) _____

 / 59

() 2. No

() Can't specify

CODERS ONLY

The remaining questions will be brief and are just for statistical purposes so that we can classify all the information into different groupings.

10. When did you first move into this home

Year 19

 / 60 / 61

11. Do you own or rent your present home.

() 1. Own

() 2. Rent

() 3. Other (specify) -----

 / 62

() 8. Refused

12. In what year were you born

Year _____
Refused _____

 / 63 / 64

13. May I have your phone number and last name as someone may phone to verify I was here

Phone Number _____
Name Mr./Mrs./Miss _____

14. Do you have any further comments you would like to make concerning your neighbourhood -----

 / 65 / 66

Thank you very much for your cooperation

TERMINATE, THEN FILL IN NEXT PAGE

TIME END _____

INTERVIEWERS PAGE

CODERS ONLY

15. Sex of Respondent

() 1. Male

() 2. Female

 / 67

18. Name of Respondent

Mr./Mrs./Ms. _____

19. Address of Respondent

20. Zone of Household

() 1. Zone 1

() 2. Zone 2

() 3. Zone 3

 / 68

Interviewer's Signature -----

INTERVIEWER RECORD OF CALLS

	<u>Day</u>	<u>Date</u>	<u>Time</u>	<u>Reason* for Incomplete</u>
First Call				
Second Call				
Third Call				
Fourth Call				

*Reasons

1. Refused
2. Language Barrier
3. Not at Home (Message card left)
4. Incomplete
5. Not a permanent resident
6. Person not eligible

QUALITY OF SERVICE ROAD DRIVING
THE APPLIED RESEARCH CONSULTING HOUSE

SEPTEMBER/OCTOBER 1981

APPLEWOOD PLAZA

INTERVIEWER: READ OUT REGULAR TYPE ONLY.
DO NOT READ CAPITAL WORDS.

INTERVIEWER: READ WITH TEMPO AND CLARITY

Hello, my name is _____ from
the Applied Research Consulting House. We are conducting a
survey in this area for the Provincial government.

SAY IMMEDIATELY

- A. Have we interviewed you in the past few days at this
plaza or at the plaza on the other side of the GEW?

IF YES - TERMINATE AND THANK INDIVIDUAL
IF NO - CONTINUE IMMEDIATELY

- B. Do you have a driver's licence?

IF NO - TERMINATE AND THANK INDIVIDUAL
IF YES - CONTINUE IMMEDIATELY

- C. Have you driven on the service road between this plaza
and Cawthra Road within the last month?

IF NO - TERMINATE AND THANK INDIVIDUAL
IF YES - CONTINUE AND IMMEDIATELY SAY

I would like to ask you some general questions concerning
driving along the service road between this plaza and
Cawthra Road, which will take less than five minutes of your
time. Your responses will remain anonymous; we do not need
your name. .

INTERVIEWER: ASK THE FIRST QUESTION IMMEDIATELY

1. How many times would you say you have driven on some portion of the service road between this plaza and Cawthra Road?

CODERS ONLY

- ☐ 1. every day
- ☐ 2. several times per week
- ☐ 3. several times per month
- ☐ 4. infrequently, once or twice per month

 / 1

Now, for the next three questions I would like you to think of yourself driving on the north service road, in the direction away from the Plaza. That is driving in the lane closest to the houses toward Cawthra Road.

Do you understand which direction I mean?

WAIT FOR RESPONSE. IF SUBJECT SAYS NO -- REPEAT.

2. What about the speed of traffic driving in the same lane as you, away from the plaza, generally would you say it is

- ☐ 1. well below speed limit
- ☐ 2. slightly below speed limit
- ☐ 3. at speed limit
- ☐ 4. slightly above speed limit
- ☐ 5. well above speed limit
- ☐ 7. DON'T KNOW

 / 2

3. What about the position of other vehicles driving in the same lane as you, away from the plaza, generally would you say they drive

- ☐ 1. quite close to the curb
- ☐ 2. about the middle of their lane
- ☐ 3. quite close to the centre line
- ☐ 7. DON'T KNOW
- ☐ 8. NEVER THOUGHT ABOUT IT/ HAVEN'T NOTICED

 / 3

4. What about the position of oncoming vehicles as you are driving away from the plaza, generally would you say they drive

- ☐ 1. quite close to the highway
- ☐ 2. about the middle of their lane
- ☐ 3. quite close to the centre line
- ☐ 7. DON'T KNOW
- ☐ 8. NEVER THOUGHT ABOUT IT/HAVEN'T NOTICED

 / 4

CODERS ONLY

For the next three questions, I would like you to think of yourself driving toward this plaza on the north service road coming from Cawthra Road. That is, driving toward this plaza in the lane closest to the highway.

Do you understand which direction I mean?

WAIT FOR RESPONSE. IF SUBJECT SAYS NO -- REPEAT.

5. The speed limit on the service road is 60 kph.

What about the speed of traffic driving in the same lane as you toward the plaza, generally would you say it is,

- ☐ 1. well below speed limit
- ☐ 2. slightly below speed limit
- ☐ 3. at speed limit
- ☐ 4. slightly above speed limit
- ☐ 5. well above speed limit
- ☐ 7. DON'T KNOW

1 / 5

6. What about the position of other vehicles driving in the same lane as you toward the plaza, generally would you say they drive

- ☐ 1. quite close to the highway
- ☐ 2. about the middle of the lane
- ☐ 3. quite close to the centre line
- ☐ 7. DON'T KNOW
- ☐ 8. NEVER THOUGHT ABOUT IT/HAVEN'T NOTICED

1 / 6

7. What about the position of oncoming vehicles as you are driving toward the Plaza, generally would you say they drive

- ☐ 1. quite close to the curb
- ☐ 2. about the middle of the lane
- ☐ 3. quite close to the centre line
- ☐ 7. DON'T KNOW
- ☐ 8. NEVER THOUGHT ABOUT IT/HAVEN'T NOTICED

1 / 7

CODERS ONLY

For the next two questions, I would like you to indicate if you consider either situation a problem. If you do feel it is a problem please indicate if it is mild, moderate or severe.

8. Is safety while driving on the service road a problem?

() 1. Yes
() 2. No
() 7. HAVEN'T REALLY NOTICED/DON'T KNOW

 / 8

If YES to what extent

() Mild
() Moderate
() Severe

 / 9

Why do you feel that way?

 / 10

9. Is noise while driving on the service road a concern?

() 1. Yes
() 2. No
() 7. HAVEN'T REALLY NOTICED/DON'T KNOW

 / 11

If YES to what extent

() Mild
() Moderate
() Severe

 / 12

10. Compared to driving in general would you say that driving on the service road

() 1. is more difficult
() 2. is about the same
() 3. is easier
() 4. DON'T KNOW

 / 13

CODERS ONLY

11. Have you noticed the barrier between the GEW and the South Service Road?

☐ 1. Yes
☐ 2. No

SKIP TO QUESTION 13

☐ 3. DON'T KNOW

 / 14

12. Do you have any suggestions about how the barrier could be changed? For example, would you built it higher or lower or change the material or design in any way?

☐ 1. Yes (specify) _____

☐ 2. No

☐ 3. Leave as is

☐ 7. Don't know

 / 15

IF YES, for what reason?

(specify) _____

 / 16

13. What type of vehicle do you usually drive when you drive on the service road

☐ 1. car
☐ 2. van/small truck
☐ 3. motorcycle
☐ 4. large truck/tractor (more than 4 wheels)
☐ 5. Other (specify) _____

 / 17

14. Would you tell me in what year you were born

YEAR

() 8. Refused _____

___ / 18 ___ / 19

Do you have any further comments you would like to make about driving or about the traffic on the service road?

Thank you very much for your co-operation.

TERMINATE INTERVIEW

RECORD

Sex of Respondent

Plaza Code

() 1. Male

() 1. Dixie

() 2. Female

() 2. Applewood

___ / 20 ___ / 21

QUALITY OF SERVICE ROAD DRIVING
THE APPLIED RESEARCH CONSULTING HOUSE

SEPTEMBER/OCTOBER 1981

DIXIE PLAZA

INTERVIEWER: READ OUT REGULAR TYPE ONLY.
DO NOT READ CAPITAL WORDS.

INTERVIEWER: READ WITH TEMPO AND CLARITY

Hello, my name is _____ from
the Applied Research Consulting House. We are conducting a
survey in this area for the Provincial government.

SAY IMMEDIATELY

A. Have we interviewed you in the past few days at this
plaza or at the plaza on the other side of the GEW?

IF YES - TERMINATE AND THANK INDIVIDUAL
IF NO - CONTINUE IMMEDIATELY

B. Do you have a driver's licence?

IF NO - TERMINATE AND THANK INDIVIDUAL
IF YES - CONTINUE IMMEDIATELY

C. Have you driven on the service road between this plaza
and Cawthra Road within the last month?

IF NO - TERMINATE AND THANK INDIVIDUAL
IF YES - CONTINUE AND IMMEDIATELY SAY

I would like to ask you some general questions concerning
driving along the service road between this plaza and
Cawthra Road, which will take less than five minutes of your
time. Your responses will remain anonymous; we do not need
your name.

INTERVIEWER: ASK THE FIRST QUESTION IMMEDIATELY

1. How many times would you say you have driven on some portion of the service road between this plaza and Cawthra Road?

CODERS ONLY

- ☐ 1. every day
- ☐ 2. several times per week
- ☐ 3. several times per month
- ☐ 4. infrequently, once or twice per month

 / 1

For the next three questions, I would like you to think of yourself driving toward this plaza on the south service road coming from Cawthra Road. That is, driving toward this plaza in the lane closest to the houses.

Do you understand which direction I mean?

WAIT FOR RESPONSE. IF SUBJECT SAYS NO -- REPEAT.

2. The speed limit on the service road is 60 kph.

What about the speed of traffic driving in the same lane as you toward the plaza, generally would you say it is,

- ☐ 1. well below speed limit
- ☐ 2. slightly below speed limit
- ☐ 3. at speed limit
- ☐ 4. slightly above speed limit
- ☐ 5. well above speed limit
- ☐ 7. DON'T KNOW

 / 2

3. What about the position of other vehicles driving in the same lane as you toward the plaza, generally would you say they drive

- ☐ 1. quite close to the curb
- ☐ 2. about the middle of the lane
- ☐ 3. quite close to the centre line
- ☐ 7. DON'T KNOW
- ☐ 8. NEVER THOUGHT ABOUT IT/HAVEN'T NOTICED

 / 3

4. What about the position of oncoming vehicles as you are driving toward the Plaza, generally would you say they drive

- ☐ 1. quite close to the highway
- ☐ 2. about the middle of the lane
- ☐ 3. quite close to the centre line
- ☐ 7. DON'T KNOW
- ☐ 8. NEVER THOUGHT ABOUT IT/HAVEN'T NOTICED

 / 4

CODERS ONLY

Now, for the next three questions I would like you to think of yourself driving on the service road, in the direction away from the Plaza. That is driving in the lane closest to the highway toward Cawthra Road.

Do you understand which direction I mean?

WAIT FOR RESPONSE. IF SUBJECT SAYS NO -- REPEAT.

5. What about the speed of traffic driving in the same lane as you, away from the plaza, generally would you say it is

- ☐ 1. well below speed limit
- ☐ 2. slightly below speed limit
- ☐ 3. at speed limit
- ☐ 4. slightly above speed limit
- ☐ 5. well above speed limit
- ☐ 7. DON'T KNOW

 / 5

6. What about the position of other vehicles driving in the same lane as you, away from the plaza, generally would you say they drive

- ☐ 1. quite close to the highway
- ☐ 2. about the middle of their lane
- ☐ 3. quite close to the centre line
- ☐ 7. DON'T KNOW
- ☐ 8. NEVER THOUGHT ABOUT IT/HAVEN'T NOTICED

 / 6

7. What about the position of oncoming vehicles as you are driving away from the plaza, generally would you say they drive

- ☐ 1. quite close to the curb
- ☐ 2. about the middle of their lane
- ☐ 3. quite close to the centre line
- ☐ 7. DON'T KNOW
- ☐ 8. NEVER THOUGHT ABOUT IT/HAVEN'T NOTICED

 / 7

CODERS ONLY

For the next two questions, I would like you to indicate if you consider either situation a problem. If you do feel it is a problem please indicate if it is mild, moderate or severe.

8. Is safety while driving on the service road a problem?

- ☐ 1. Yes
☐ 2. No
☐ 7. HAVEN'T REALLY NOTICED/DON'T KNOW

 / 8

If YES to what extent

- ☐ Mild
☐ Moderate
☐ Severe

 / 9

Why do you feel that way?

 / 10

9. Is noise while driving on the service road a concern?

- ☐ 1. Yes
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☐ 7. HAVEN'T REALLY NOTICED/DON'T KNOW

 / 11

If YES to what extent

- ☐ Mild
☐ Moderate
☐ Severe

 / 12

10. Compared to driving in general would you say that driving on the service road

- ☐ 1. is more difficult
☐ 2. is about the same
☐ 3. is easier
☐ 4. DON'T KNOW

 / 13

CODERS ONLY

11. Have you noticed the barrier between the GEW and the South Service Road?

- ☐ 1. Yes
- ☐ 2. No

☐ 3. DON'T KNOW

SKIP TO QUESTION 13

 / 14

12. Do you have any suggestions about how the barrier could be changed? For example, would you built it higher or lower or change the material or design in any way?

☐ 1. Yes (specify) _____

☐ 2. No

☐ 3. Leave as is

☐ 7. Don't know

 / 15

IF YES, for what reason?

(specify) _____

 / 16

13. What type of vehicle do you usually drive when you drive on the service road

- ☐ 1. car
- ☐ 2. van/small truck
- ☐ 3. motorcycle
- ☐ 4. large truck/tractor (more than 4 wheels)
- ☐ 5. Other (specify) _____

 / 17

CODERS ONLY

14. Would you tell me in what year you were born

YEAR

() 8. Refused _____

___/ 18 /___/ 19

Do you have any further comments you would like to
make about driving or about the traffic on the service
road?

Thank you very much for your co-operation.

TERMINATE INTERVIEW

RECORD

Sex of Respondent

Plaza Code

() 1. Male

() 1. Dixie

() 2. Female

() 2. Applewood

___/ 20 /___/ 21

APPENDIX B

October 1, 1981

Dear Sir/Madam,

THE PROVINCIAL GOVERNMENT IS INTERESTED IN YOUR OPINIONS

The Provincial Government has contracted with our firm to conduct a study in your neighbourhood. The study concerns your views of the quality of life in your neighbourhood. We will be asking about both positive and negative aspects of the neighbourhood, and I think you will find it interesting.

I would like to emphasize that we are NOT selling ANY products or services, but simply conducting a survey. Some time between October 5 and October 16 one of our interviewers will be calling you, at your home, to request your participation. You will be asked to spend approximately twenty (20) minutes of your time answering some questions. These questions will be general and cover such issues as pollution, road condition and local area amenities. Your responses will be treated in strict confidence and will be used in group for statistical purposes only.

Your help and co-operation would be greatly appreciated. It is only through the participation of individuals such as yourself that the government can identify issues of importance to you as a resident of this community.

For both your convenience and ours, a call from you to set a meeting time in advance would be most welcome.

Thanking you in advance.

Yours very truly,

Jim McDonald
Executive Director
THE APPLIED RESEARCH CONSULTING HOUSE Ltd.

JM/l's

APPENDIX C

Selected Noise Barrier References

Adams, M., Deslauriers, B. and Gorys, P. "Overview of MTC Noise Barrier Social Survey Research," July 1980.

Anderson, K.C. and Rupert, H.M. "Highway Noise Barriers: Their Purpose, Materials and Visual Quality." Construction Specifier. Vol. 26, No. 7, 1974.

Andrew, C. and May, D.N., "Highway Noise Barrier Location for Maximum Benefit/Cost," February 1978. 78-AC-03.

Andrew, C. and Sharratt, K., "Privacy Fence: A Survey of Public Reaction to the Privacy Fence Located along Highway 401 within Metro Toronto between Victoria Park and Warden Avenues," June 1976.

Bolt, Beranek and Newman Inc. Highway Noise Generation and Control. Transportation Research Board. National Co-operative Highway Research Program Report No. 173, 1976.

Kornets, J. and Sharratt, K., "Highway Noise Barriers: A Review of Non-Acoustical Effects," 1979.

Schliewinsky, F., Adams, M., Deslauriers, B. and Gorys, P., "Analysis of Noise Barrier Impact on Dissatisfaction with Freeway Annoyances," April 1979.

Scholes, W.E. et al. Performance of a Motorway Noise Barrier at Heston. Great Britain, Department of the Environment, Building Research Establishment. Current Paper No. CP50/74, 1974.

White, J, Fallis, A., Deslauriers, B. and Gorys, P. "Noise Barrier Social Impact Study: Highway 401 Between Don Valley Parkway and Victoria Park Avenue," March 1980.

APPENDIX D/ ADDITIONAL TABLES

Neighbourhood Quality Survey Results
for Residents North and South of the QEW

	NORTH	SOUTH
Average Length of Residence (Years)	14.1	11.9
Average Age (Years)	49.9	43.4

QUESTION 1

	NORTH		SOUTH	
	%	N	%	N
"Neighbourhood Likes"				
a	52.7	29	69.4	34
b	23.6	13	34.7	17
c	25.5	14	18.4	9
d	29.1	16	24.5	12
e	1.8	1	6.1	3

QUESTION 2

	NORTH		SOUTH	
	%	N	%	N
"Neighbourhood Dislikes"				
a	60.0	33	57.1	28
b	-	-	2.0	1
c	5.5	3	14.3	7
d	-	-	-	-
e	18.2	10	8.2	4
f	1.8	1	6.1	3
g	-	-	6.1	3
h	20.0	11	26.5	13

APPENDIX D/ ADDITIONAL TABLES (con't)

MEAN
SEVERITY OF
PROBLEM

QUESTION 3

		NORTH	SOUTH
"Potentially Negative Features"	a	.62	.80
	b	.33	.63
	c	2.15	2.00
	d	1.96	1.22
	e	1.62	1.94
	f	1.13	1.43
	g	.86	.41

QUESTION 4

		NORTH		SOUTH	
		Q.E.W.	SR	Q.E.W.	SR
"Negative Features Q.E.W. and Service Road"	a	1.62	1.25	1.36	.88
	b	1.07	.75	.80	.63
	c	2.00	1.71	1.93	1.51
	d	1.04	.87	.76	.63
	e	1.33	1.04	1.09	.94

QUESTION 5

		NORTH		SOUTH	
"Problem Limitations"	%	N		%	N
YES	41.8	23		26.5	13
NO	58.2	32		61.2	30
N/A	-	-		12.2	6

APPENDIX D/ ADDITIONAL TABLES (con't)

QUESTION 6		PERCENT CHECKED	
		NORTH %	SOUTH %
"Home Alterations Features"			
	weather stripping	58.2	79.6
	air conditioning	36.4	55.3
	storm windows	54.5	91.8
	planted trees	63.6	81.6
	fence	40.0	73.5
		NORTH %	SOUTH %
QUESTIONS 7 & 8			
"Noticed Barrier"			
	YES	83.6	81.6
Suggested Changes	YES	54.3	55.3
	NO	23.9	13.2
Leave as is		17.4	31.6
Don't Know		4.3	-
QUESTION 9			
"Considering Moving"		% n	% n
	YES	47.3 26	44.9 22
Related to Problems	YES	69.2 18	60.9 14

